

# Canada's Draft Clean Electricity Regulations:

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## An Ontario Analysis



September 26, 2025



# Acknowledgments

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Ontario Clean Air Alliance Research gratefully acknowledges the generous financial support that it has received for this report from:

**Echo Foundation**

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**Green Sanderson Family Foundation**

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**Ivey Foundation**

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**M.H. Brigham Foundation**

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**Merryweather Fund**

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**Noor Cultural Centre**

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**Taylor Irwin Family Foundation at the Toronto Foundation**

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## Introduction

The Trudeau Government has committed Canada to achieving a net zero-carbon electricity grid by 2035.<sup>1</sup>

In August 2023, the Government of Canada released its draft *Clean Electricity Regulations* (CERs).<sup>2</sup> Section 6 (1) of the draft CERs caps the carbon dioxide emissions of fossil power plants at 30 tonnes per gigawatt-hour (GWh). In the absence of loopholes, this cap would move Ontario to a net zero-carbon electricity grid effective Jan. 1, 2035 since the actual carbon dioxide emissions of Ontario's gas plants are more than 10 times higher than the 30 tonne per GWh cap.

However, the draft CERs have the following three significant loopholes:

### Three Significant Loopholes

- 1** Sections 4 and 5 exempt gas boilers and combustion engines that have or will come into service before Jan. 1, 2025 from the 30 tonne per GWh cap for 20 years after their in-service dates.
- 2** Section 3 permits all gas boilers and combustion engines to exceed the 30 tonne per GWh cap for up to 450 hours per year as long as their total emissions do not exceed 150,000 tonnes.
- 3** Section 19 exempts gas boilers and combustion engines from the 30 tonne per GWh cap if they are needed to provide back-up to the electricity grid during an emergency defined as an "extraordinary, unforeseen and irresistible event."

In addition, the draft CERs do not have pre-2035 greenhouse gas (GHG) emission reduction standards despite the fact that the Government of Canada recognizes that we must take rapid action to reduce GHG pollution to limit global warming to 1.5 degrees Celsius. In other words, the regulations will do nothing to ratchet down gas plant emissions until more than a decade from now.



Canada is committed  
to achieving a net  
zero-carbon  
electricity grid by  
**2035**

# 1 | The Twenty Year Loophole

## Existing Gas Plants

The 20-year loophole will allow Ontario Power Generation's 900-megawatt (MW) Napanee Generating Station and Greenfield South's 314 MW Green Electron Power Plant to continue to operate at full capacity 24/7 up to Dec. 31, 2040 and Dec. 31, 2037 respectively. It will also permit the 29.9 MW Kirkland Lake and the 45.7 MW Maitland gas plants to operate at full capacity up to Dec. 31, 2035.

The annual gas-fired electricity generation and GHG pollution of these gas plants, if they operate at full capacity, are shown in Table 1 below.

**Table 1 | Potential annual gas-fired electricity generation and greenhouse gas pollution from the Napanee, Green Electron, Kirkland Lake and Maitland gas plants due to Twenty-Year Loophole<sup>3</sup>**

	Gas-Fired Electricity Generation	Greenhouse Gas Pollution
Napanee Generating Station	7,490 gigawatt-hours (GWh)	2.90 megatonnes (MT)
Green Electron Power Plant	2,613 GWh	1.01 MT
Kirkland Lake & Maitland	628 GWh	0.24 MT
<b>Total</b>	<b>10,731 GWh</b>	<b>4.15 MT</b>

The total potential GHG pollution of these four gas plants in 2035 (4.15 MT) is 60% greater than the total GHG of all of Ontario's gas-fired power plants in 2017 (2.6 MT).<sup>4</sup>

Furthermore, since these power plants came into service before January 1, 2021, only approximately 20% of their greenhouse gas pollution is subject to the federal carbon tax.<sup>5</sup>

## New gas plants

Earlier this year, the Independent Electricity System Operator (IESO) awarded contracts to Capital Power and Eastern Power to build new gas-fired peaker plants in Windsor and St. Clair Township. If these plants come into service before Jan. 1, 2025, the 20-year loophole will allow them to operate at full capacity until Dec. 31, 2044. Their potential annual gas-fired electricity generation and GHG pollution are shown in Table 2 below.



The 20-year loophole will allow some gas plants to operate at full capacity until **2035**

**Table 2 | Potential annual gas-fired electricity generation and greenhouse gas pollution from Windsor and St. Clair Township gas plants due to Twenty-Year Loophole<sup>6</sup>**

	Gas-Fired Electricity Generation	Greenhouse Gas Pollution
Windsor Gas Plant	882 GWh	0.46 MT
St. Clair Township Gas Plant	1,768 GWh	0.92 MT
<b>Total</b>	<b>2,650 GWh</b>	<b>1.38 MT</b>

Currently, Alberta, Saskatchewan and Nova Scotia obtain approximately 70-90% of their electricity from fossil fuel generating stations, including coal-fired power plants.<sup>7</sup> In contrast, Ontario phased-out its last coal plant in April 2014 and obtained only 10.4% of its electricity from fossil fuels in 2022.<sup>8</sup>

While the 20-year loophole may or may not be appropriate for provinces with fossil-intensive electricity systems, it is not appropriate for Ontario, which can simultaneously achieve a net zero-carbon electricity grid by 2035 and lower its electricity rates.

**Recommendation #1**

The 20-year loophole, which permits gas plants in service before Jan. 1, 2025 to operate at full capacity for 20 years after their in-service dates, should be eliminated.

Alternatively, if the Government of Canada believes that the 20-year loophole is appropriate for provinces with fossil-intensive electricity systems, the exemption should only be permitted in provinces with fossil-intensive electricity systems.



Ontario obtained only  
**10.4%** of its  
electricity from  
fossil fuels in 2022

## 2 | The 450 Hour/150,000 Tonne Loophole

The 450 hour/150,000 tonne loophole would permit all of Ontario's gas plants to operate for 450 hours per year after Jan. 1, 2035, with the exception of the Lennox Generating Station. Lennox's four inefficient and high-emitting 500 MW boilers would each be permitted to operate for 235.3 hours per year.<sup>9</sup>

The potential total annual gas-fired electricity generation and greenhouse gas pollution under the 450 hour/150,000 tonne loophole for gas plants that are more than 20 years old in 2035, are shown in Table 3 below.

**Table 3 | Potential annual gas-fired electricity generation and greenhouse gas pollution from gas plants that are more than 20 years old in 2035 under the 450 hour/150,000 tonne Loophole<sup>10</sup>**

Gas-Fired Electricity Generation	Greenhouse Gas Pollution
3,305 GWh	1.70 MT

While the 450 hour/150,000 loophole may or may not be appropriate for provinces with fossil-intensive electricity systems, it is not appropriate for Ontario, which can simultaneously achieve a net zero-carbon electricity grid by 2035 and lower its electricity rates.

### Recommendation #2

The 450 hour/150,000 loophole should be eliminated.

Alternatively, if the Government of Canada believes that the 450 hour/150,000 tonne loophole is appropriate for provinces with fossil-intensive electricity systems, it should only be permitted in provinces with such systems.



The 450 hour/150,000 tonne loophole would permit almost all of Ontario's gas plants to operate for **450** hours per year after 2035

### 3 | The Emergency Back-Up Loophole

The emergency back-up loophole permits Ontario's gas plants to operate during an extreme event if we do not have sufficient zero-carbon electricity resources to keep our lights on.

This loophole is in the public interest since it will enable Ontario to move to a zero-carbon electricity system with zero risk of blackouts.

The IESO should maintain its electricity contracts with some of Ontario's plants (e.g., Napanee Generating Station, Green Electron Power Plant) after Jan. 1, 2035 to ensure that we have sufficient gas-fired generation on standby reserve for emergency use at all times.

## The need for pre-2035 Greenhouse Gas Emission Reduction Standards

The Government of Canada's *2030 Emissions Reduction Plan* calls for Canada's electricity sector GHG pollution to be reduced by 77% between 2019 and 2030.<sup>11</sup>

Unfortunately, Ontario is moving in the opposite direction. Specifically, Ontario is planning to build up to 1,500 MW of new gas-fired electricity generation<sup>12</sup> and increase the GHG pollution of its gas-fired power plants by more than 300% by 2030 relative to its 2017 level.<sup>13</sup>

Building new gas-fired electricity generation capacity in Ontario does not make climate or economic sense. According to a Royal Bank of Canada report, Ontario can avoid the need for new gas-fired electricity generation capacity and reduce its electricity costs by \$500 million per year by investing in energy efficiency and demand management.<sup>14</sup>

#### Recommendation #3

New gas-fired generation capacity should be prohibited *effective immediately*. This can be achieved by mandating that the carbon dioxide emissions of all gas-fired generation that comes into service on or after Jan. 1, 2024 must be 30 tonnes per GWh effective immediately.

Alternatively, if the Government of Canada does not believe that a ban on new gas-fired generation capacity is appropriate for provinces that still have coal-fired generation capacity, the ban could be limited to provinces that do not have coal-fired electricity generation.



This loophole is in the public interest since it will enable Ontario to move to a **zero-carbon** electricity system with zero risk of blackouts

## Electricity Rate Impact Analysis

Ontario will require new electricity supply to replace both our gas plants and our aging nuclear reactors, while meeting new demand from the electrification of transportation and buildings. Currently, the provincial government's preferred approach is to rely on expensive and slow to deploy new and rebuilt nuclear units. This is the highest-cost way to meet the province's energy needs.

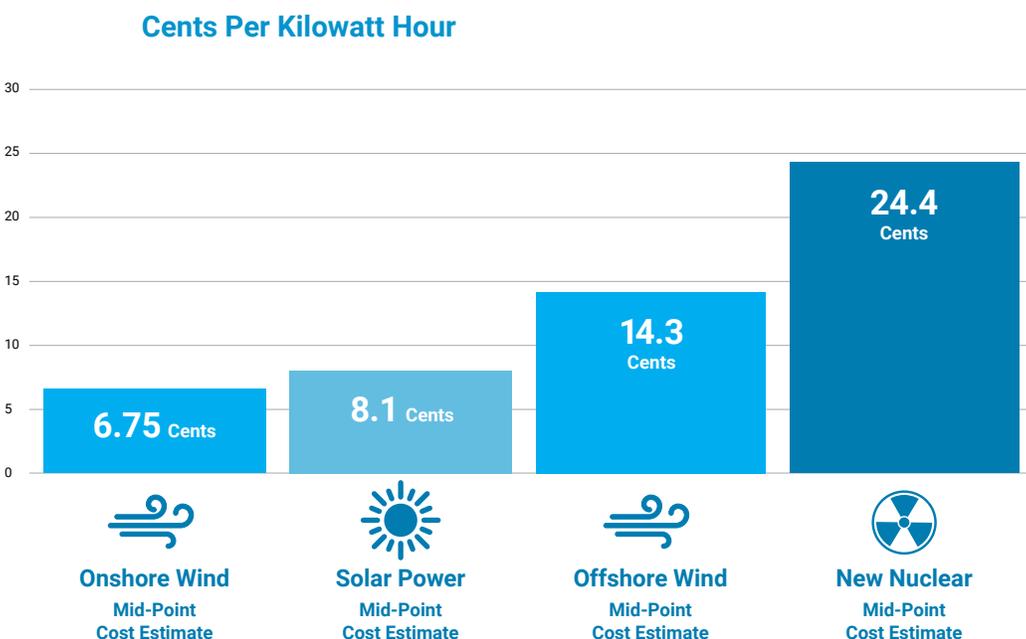
Since 2009, the cost of wind and solar energy has fallen by 66 and 84 percent respectively.<sup>15</sup> As a result, wind and solar are now our lowest cost sources of new electricity supply.

According to a November 2022 Power Advisory report for The Atmospheric Fund, by investing in wind, solar, storage and demand response, Ontario can achieve a net zero-carbon electricity grid by 2035 without raising wholesale electricity prices above today's level.<sup>16</sup>

Despite the financial attractiveness of renewable sources, Ontario has not procured a single kilowatt hour of solar or wind power in the past five years.

According to Lazard, one of the most respected names in global financial services, the cost of electricity from a new nuclear reactor is 1.7 times greater than the cost of offshore wind, three times greater than the cost of solar power, and 3.6 times greater than the cost of onshore wind. See Figure 1.

**Figure 1 | Ontario's Electricity Options: A Cost Comparison<sup>17</sup>**



Since 2009, the cost of wind and solar energy has fallen by **66% and 84%** respectively

Fortunately, Ontario has a huge untapped renewable energy potential. Great Lakes offshore wind power alone has the potential to provide Ontario with enough power to meet more than 100% of its electricity needs.<sup>18</sup>

Nevertheless, the Government of Ontario is planning to build 1,200 MW of new nuclear generating capacity at the Darlington Nuclear Station<sup>19</sup>, 4,800 MW of new nuclear generating capacity at the Bruce Nuclear Station<sup>20</sup> and to re-build the 2,000 MW Pickering B Nuclear Station.<sup>21</sup>

By investing in energy efficiency, demand response and wind and solar energy to phase-out gas power and to avoid up to 8,000 MW of new, high-cost nuclear reactors, Ontario can simultaneously move to a net zero-carbon electricity grid by 2035 and lower its electricity rates.

Of course, wind and solar power must be combined with storage options that can transform these intermittent energy sources into firm 24/7 sources of baseload electricity. The Government of Ontario is in the process of procuring storage resources from stationary storage options (e.g., large batteries) located in Ontario. However, there are also lower cost storage options that Ontario should pursue.

According to a Massachusetts Institute of Technology report, the lowest cost storage option for wind and solar energy is Quebec's hydro-electric reservoirs.<sup>22</sup> In short, by integrating our wind generation with Hydro Quebec's reservoirs, we can convert intermittent wind energy into a firm 24/7 source of baseload electricity supply for Ontario. The total capacity of Hydro Quebec's reservoirs (228,000 gigawatt-hours<sup>23</sup>) is 1.6 times greater than Ontario's total annual electricity consumption in 2022 (137,000 gigawatt-hours).

Our electric vehicles' (EVs) batteries are also a low-cost storage option for wind and solar energy. When combined with bi-directional chargers, our EVs can store surplus energy when renewable energy generation is high, and return power back to the grid when renewable generation is below average. By 2030, the total capacity of our EVs' batteries will be more than double the capacity of our gas plants.<sup>24</sup>



**Ontario can simultaneously move to a net zero-carbon electricity grid by 2035 and lower its electricity rates**

## Conclusions and Recommendations

Thirty five municipalities, representing almost 60% of the province's population, have passed resolutions calling for the phase-out of gas power in Ontario by 2030 or as soon as possible.<sup>25</sup>

Prime Minister Trudeau has committed Canada to achieving a net zero-carbon electricity grid by 2035.

By investing in energy efficiency, demand management, wind and solar energy and energy storage, Ontario can achieve a net zero-carbon electricity grid by 2035 and lower its electricity rates.

Unfortunately, the Government of Canada's draft Clean Electricity Regulations will not require Ontario to move to a net zero-carbon electricity grid by 2035. Two of the three loopholes in the draft regulations will permit the GHG pollution from Ontario's power plants in 2035 to exceed their 2017 level by up to 178%.

These loopholes need to be closed.

## Recommendations

**1** The 20-year loophole, which permits gas plants in service before Jan. 1, 2025 to operate at full capacity for 20 years after their in-service dates, should be eliminated.

Alternatively, if the Government of Canada believes that the 20-year loophole is appropriate for provinces with fossil-intensive electricity systems, it should only be permitted in provinces with fossil-intensive electricity systems.

**2** The 450 hour/150,000 tonne loophole which permits all of Ontario's gas plants, except Lennox, to operate for 450 hours per year after Jan. 1, 2035 should be eliminated.



**35** municipalities  
have passed  
resolutions calling for  
the phase-out of gas  
power in Ontario

## Recommendations

**3** In addition to closing the 20-year and 450 hour/150,000 tonne loopholes, the *Clean Electricity Regulations* should prohibit the building of new gas-fired generation capacity in Ontario *effective immediately*. This can be achieved by mandating that the carbon dioxide emissions of all gas-fired generation that comes into service on or after Jan. 1, 2024 must be 30 tonnes per GWh effective immediately.

Alternatively, if the Government of Canada does not believe that a ban on new gas-fired generation capacity is appropriate for provinces that still have coal-fired generation capacity, the ban could be limited to provinces that do not have coal-fired electricity generation.



***Clean Electricity Regulations* should prohibit the building of new gas-fired generation capacity in Ontario effective immediately**

## Sources

- 1 [Prime Minister Trudeau and President Biden Joint Statement | Prime Minister of Canada \(pm.gc.ca\)](#)
- 2 [Canada Gazette, Part 1, Volume 1, Number 1: Clean Electricity Regulations](#)
- 3 The annual gas-fired electricity generation was estimated assuming that the gas plants would have a 95% capacity utilization rate. We have used the IESO's estimate of the average greenhouse gas emission rate of Ontario's gas plants in 2035, 387 tonnes per GWh, to estimate the gas plants' GHG pollution. See IESO, *2022 Annual Planning Outlook*, Data Tables, Figure 44, Case 2 and Figure 48. [Annual Planning Outlook \(ieso.ca\)](#)
- 4 *2022 Annual Planning Outlook*, Data Tables, Figure 48.
- 5 Ontario's gas plants that came into service prior to January 1, 2021 are only subject to carbon taxation with respect to their greenhouse gas pollution that exceeds 310 tonnes per GWh.
- 6 The Windsor and St. Clair Township gas plants have nameplate capacities of 106 and 212.5 MW respectively. We have calculated their annual electricity generation assuming that they will have 95% capacity utilization rates. We have assumed that their GHG emission rates will be 520 tonnes per GWh, based on Northland Power's forecast GHG emission rate for its proposed 198 MW Thorold peaker plant. [Long-Term RFP and Expedited Process \(ieso.ca\)](#); and email to Jack Gibbons from Thorold Peaking Project, Northland Power, (August 29, 2023).
- 7 [CER – Provincial and Territorial Energy Profiles \(cer-rec.gc.ca\)](#)
- 8 [2022 Year in Review \(ieso.ca\)](#)
- 9 The Lennox Generating Station has four 500 MW boilers. In 2022 Lennox's GHG emission rate was 1,275 tonnes per GWh. At this emission rate, the 150,000 tonne per year emission limit will cap the annual electricity generation of each boiler at 117.65 GWh. Email to Jack Gibbons from Matt, Support Team, Ontario Power Generation, September 19, 2023.
- 10 In the first quarter of 2023 the IESO had 9,439 MW of gas-fired generation capacity under contract of which 137.54 MW consisted of units which are exempt from the draft CERs since they have capacities of 25 MW or less. The GHG pollution of the Napanee (900 MW) and Green Electron (314 MW) gas plants are exempt from output and GHG caps until 2041 and 2038 pursuant to the twenty-year loophole. The Kirkland Lake (29.868 MW) and Maitland (45.7 MW) gas plants are exempt until 2036. The Lennox Generating Station (2,000 MW) has a maximum potential annual output and GHG pollution of 471 GWh and 0.60 MT respectively (see endnote above). Ontario's remaining 6,011.89 MW of currently existing gas generation can produce 2,705 GWh of electricity and 1.05 MT of GHG pollution per year assuming that they operate for 450 hours per year and the IESO's forecast average GHG emission rate of our gas plants in 2035 (387 tonnes per GWh). In addition, the IESO has contracted for 286.4 MW of capacity upgrades to seven of Ontario's existing gas plants which will raise Ontario's permissible electricity generation and GHG pollution in 2035, due to the 450 hour/150,000 tonne loophole, by an additional 129 GWh and 0.05 MT. IESO, *Progress Report on Contracted Electricity Supply: First Quarter 2023*, page 11; [https://www.ieso.ca/en/Sector-Participants/Resource-Acquisition-and-Contracts/Long-Term-RFP-and-Expedited-Process](https://www.ieso.ca/en/Sector-Participants/Resource-Acquisition-and-Contracts/Contract-Data-and-Reports); and IESO, *2022 Annual Planning Outlook*, Data Tables, Figure 44, Case 2 and Figure 48.
- 11 [Canada's 2030 Emissions Reduction Plan - Overview - Canada.ca](#)
- 12 October 7, 2022 Directive from the Minister of Energy to the IESO: <https://www.ieso.ca/en/Corporate-IESO/Ministerial-Directives>
- 13 IESO, *2022 Annual Planning Outlook*, Data Tables, Figure 48.
- 14 Royal Bank of Canada, *Power Shift: How Ontario Can Cut Its \$450-Billion Electricity Bill*, (2023), page 1: <https://thoughtleadership.rbc.com/power-shift-how-ontario-can-cut-its-450b-electricity-bill/>
- 15 Lazard, *Lazard's Levelized Cost of Energy Analysis – Version 16.0*, (April 2023), page 10.
- 16 Power Advisory, *Scenarios for a Net-Zero Electricity System in Ontario*, Prepared for: The Atmospheric Fund, (November 2022), pages 1–3.
- 17 According to Lazard: a) the cost of onshore wind is 2.4 to 7.5 cents per kWh (US\$); the cost of utility-scale solar PV is 2.4 to 9.6 cents per kWh (US\$); the cost of offshore wind is 7.2 to 14.0 cents per kWh (US\$); and the cost of a new nuclear reactor is 14.1 to 22.1 cents per kWh (US\$). We have converted these costs to Canadian dollars by multiplying them by 1.35. Lazard, *Lazard's Levelized Cost of Energy Analysis – Version 16.0*, (April 2023), page 2.
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- 21 <https://news.ontario.ca/en/release/1002338/ontario-supports-plan-to-safely-continue-operating-the-pickering-nuclear-generating-station>
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- 24 Ontario Clean Air Alliance, *Vehicle to Building/Grid Integration*, (November 22, 2021), page 2.
- 25 <https://www.cleanairalliance.org/ontario-municipalities-that-have-endorsed-gas-power-phase-out/>

